



# Time, Money, and Morality

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Running Head: TIME, MONEY, AND MORALITY

**Time, Money, and Morality**

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**Abstract**

Money, a resource that absorbs much daily attention, seems to be present in much unethical behavior thereby suggesting that money itself may corrupt. This research examines a way to offset such potentially deleterious effects—by focusing on time, a resource that tends to receive less attention than money but is equally ubiquitous in our daily lives. Across four experiments, we examine whether shifting focus onto time can salvage individuals' ethicality. We found that implicitly activating the construct of time, rather than money, leads individuals to behave more ethically by cheating less. We further found that priming time reduces cheating by making people reflect on who they are. Implications for the use of time versus money primes in discouraging or promoting dishonesty are discussed.

**Keywords:** ethics, dishonesty, time, money, unethical behavior, cheating, self-reflection

It seems a day doesn't go by without some unethical behavior by a politician, movie star, professional athlete, or high-ranking executive splashing the cover of newspapers. Although less sensational, revelations of cheating have also crept into the sciences, and continue to show up in classrooms, businesses, and marriages. Sadly, such actions have ruinous consequences, hurting individuals, families, corporations, and entire academic fields. Given that decades of psychology research have shown that people strive to maintain a positive self-concept (Adler, 1930; Rogers, 1959) and that morality is central to people's self-image (Aquino & Reed, 2002; Chaiken, Giner-Sorolla, & Chen, 1996), the prevalence of unethical behavior and the fact that even good people are prone to lose track of their moral compass is surprising (Ayal & Gino, 2011; Mazar, Amir, & Ariely, 2008; Shalvi, Eldar, & Bereby-Meyer, 2012). Are there simple ways to encourage self-reflection, thus decreasing individuals' tendencies to behave immorally so as not to tarnish their self-image?

Here, we focus on two triggers that may influence self-reflection and are ubiquitous enough in the environment to have a chance at instigating a widespread effect on unethical behavior: money and time. Both are principle resources that individuals encounter on a daily basis through constant management of how to spend and save their dollars and hours. And even though Benjamin Franklin taught us to equate the two in his directive, "time is money," research comparing these resources shows that people react to them differently (Aaker, Rudd, Mogilner, 2011; DeVoe & Pfeffer, 2007, 2010, 2011; Mogilner 2010; Zauberman & Lynch, 2005).

When people are focused on money, they behave in self-interested (but not self-reflective) ways. For instance, merely thinking about money leads people to be less helpful and fair in their dealings with others, less sensitive to social rejection, and to work harder towards personal goals (Vohs, Mead, & Goode, 2006, 2008; Yang, Wu, Zhou, Mead, Vohs, &

Baumeister, 2012; Zhou, Vohs, & Baumeister, 2009). Indeed, university students were more likely to cheat after seeing 7000 dollar bills than after seeing 24 (Gino & Pierce, 2009). Given the prominence of money in Western culture's psyche (Fromm, 1976) and its centrality in our political philosophy (Caruso, Vohs, Baxter, & Waytz, 2012), the prevalence of unethical behavior thus becomes less surprising.

Time is equally ubiquitous in people's lives, but it tends to absorb less attention. For instance, in a study we conducted, 125 Americans (55 male; ages 18-69) reported on 7-point scales to think less about time than money over the course of their day ( $M_{\text{time}} = 5.10$ ,  $SD = 1.43$ ;  $M_{\text{money}} = 5.55$ ,  $SD = 1.27$ ;  $t(124)$ , 2.70,  $p = .008$ ) and to be less focused on time than money in general ( $M_{\text{time}} = 5.04$ ,  $SD = 1.44$ ;  $M_{\text{money}} = 5.42$ ,  $SD = 1.38$ ;  $t(124)$ , 2.29,  $p = .02$ ). Google Trends ([www.google.com/trends](http://www.google.com/trends)) also shows that across the world over the last five years, "dollar" received 30% more web searches than "hour," and "save money" received 73% more searches than "save time."

What if people were to shift their attention away from money and towards time, would they behave in ways that are consistent with self-reflection and a more admirable self-image? Prior research has found that when people are reminded of time (rather than money), they are more generous in their charitable giving (Liu & Aaker, 2008) and are more motivated to connect with loved ones (Mogilner, 2010)—a behavior that is particularly treasured when reflecting on one's life (Frederickson & Carstensen, 1990; Loewenstein, 1999). Additionally, whereas people use money in transactions with everyone from close friends to perfect strangers, they reserve time for the people and things that really matter to who they are (Foa & Foa, 1980). Therefore, time may be more than just a resource that people manage in their daily schedules; how they spend their time may serve as the measure of people's lives and who they are as individuals. If

time is indeed more reflective of the self than money (Mogilner & Aaker, 2009; Reed, Aquino, & Levy, 2007), it may be that leading people to think about time, rather than money, will encourage them to reflect on who they are as individuals, and thus be less prone to unethical behavior.

We specifically predict that priming people to think about time, rather than money, will lead to more ethical behavior by encouraging people to reflect on who they are, making them more conscious of how they conduct themselves so as to maintain a positive self-image. We test this hypothesis across four experiments by priming time or money and observing participants' tendencies to cheat for monetary or personal gain.

### **Experiment 1: Priming Money vs. Time**

We first examined whether priming people to think about time, rather than money, would lead them to behave more ethically by cheating less. Participants were thus first primed with money, time, or neither and then completed a task in which they had the opportunity to cheat by overstating their performance, thereby taking unearned money.

### **Method**

**Participants and design.** Ninety-eight students and staff members at a university in the Southeastern United States (43 male;  $M_{age}=23.15$ ,  $SD=8.13$ ) participated in the study for pay. They received a \$2 show-up fee and had the opportunity to earn an additional \$20 based on their performance in the study. Participants were randomly assigned to one of three conditions: money prime, time prime, or no prime (control condition).

**Prime.** Participants were told that they would complete a series of unrelated tasks and were first presented with a sentence-unscramble task in which they were surreptitiously exposed to time-related words, money-related words, or only neutral words (Mogilner, 2010). They

received a list of word sets, each containing four words of which they should use three to create a sentence. For example, participants in the time condition were asked to construct sentences out of such word sets as “sheets the change clock,” those in the money condition were presented with such word sets as “sheets the change price,” and those in the control condition were presented with such neutral word sets as “sheets the change socks.” Participants had three minutes to create as many sentences as possible.

**Cheating opportunity.** In a “Numbers Game,” participants received an envelope that contained twenty dollars, along with two sheets of paper. The first was a collection slip that included instructions and an example matrix, a space for participants to report their performance on the task, and demographic questions. The second was a worksheet with 20 matrices, each with a set of 12 three-digit numbers (e.g., 4.78; Mazar et al., 2008). Participants had five minutes to find two numbers per matrix that added up to 10, but five minutes is not enough time to solve all 20 matrices (Gino, Ayal, & Ariely, 2009). For each pair of numbers correctly identified, participants were instructed to keep \$1 from their supply of money and to return the remaining amount in the envelope along with the collection slip at the end. Before returning the money and submitting their collection slips, participants threw their actual matrix worksheets into a recycle bin.

Importantly, there was no apparent identifying information anywhere on the two sheets, so participants’ actual results seemed anonymous. Thus, participants had both an incentive and opportunity to over-report their performance in order to earn more money. In actuality, one of the three-digit numbers in the example matrix on the collection slip was different for each participant and was equal to one of the three-digit numbers in a matrix on the worksheet. This allowed us to later match the worksheet with the collection slip of each participant and compute

the difference between self-reported and actual performance (i.e., the extent of cheating). Positive differences indicated performance over-reporting and thus whether participants cheated on the task.

### Results and Discussion

The percentage of participants who cheated varied across conditions,  $\chi^2(2, N=98)=14.61$ ,  $p=.001$  (see Figure 1); participants were more likely to cheat in the money condition (87.5%, 28/32) than in either the control condition (66.7%, 22/33;  $\chi^2(1, N=65)=3.97$ ,  $p<.05$ ) or the time condition (42.4%, 14/33;  $\chi^2(1, N=65)=14.44$ ,  $p<.001$ ). Participants were also less likely to cheat in the time condition than in the control condition ( $\chi^2(1, N=66)=3.91$ ,  $p<.05$ ).

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 Insert Figure 1 about here  
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The extent of cheating also varied across conditions,  $F(2,95)=5.09$ ,  $p=.008$ ,  $\eta_p^2=.10$ . Simple contrasts revealed that participants cheated more in the money condition ( $M=4.41$ ,  $SD=4.25$ ) than in both the control condition ( $M=2.76$ ,  $SD=3.96$ ;  $p=.07$ ) and the time condition ( $M=1.55$ ,  $SD=2.41$ ;  $p=.002$ ). The difference between the time and control conditions did not reach statistical significance ( $p=.18$ ).

Altogether, these results show that that compared to the control condition, participants in the money condition were *more* likely to cheat by over-reporting performance while participants in the time condition were *less* likely to cheat.

### Experiment 2: Manipulating Self-Reflection

Our first study demonstrated that money-primers encourage unethical behavior, while time-primers discourage it. To test the robustness of these effects, Experiment 2 used a novel priming method. Additionally, we adapted the numbers game to rule out a potential confound in



the cheating measure: In Experiment 1, participants' task performance was rewarded with money; therefore, it may have been that priming participants with money simply increased their motivation to earn more money, rather than influencing their ethicality per se. To rule out this potential confound, participants' performance in this experiment was not rewarded with money.

More importantly, we designed this study to gain insight into why thinking about time leads to less cheating than thinking about money by manipulating participants' motivation to perform well on the numbers game. For half of the participants, the game was described as an intelligence test; whereas for the other participants, the game was described as a personality test that assessed what kind of person they are. If priming time decreases cheating by making people reflect on who they are, we should see those primed with money in the latter condition to behave like those primed with time. However, when the game is a test of intelligence, we should see the same effect observed in Experiment 1.

### Method

**Participants and design.** One hundred forty-two students at an East Coast university (61 male;  $M_{age}=21.84$ ,  $SD=3.75$ ) participated in this study as part of an hour-long session of studies in exchange for \$10. Participants were randomly assigned to one of four conditions in a 2 (prime: time vs. money)  $\times$  2 (assessment: intelligence vs. personality) between-subjects design.

**Prime.** Ostensibly before beginning the study, participants were told that in a later experimental session we were going to conduct a study that exposed students to different songs and measure the effect on behavior. To prepare for this, we were asking these participants to help us search for songs that have lyrics pertaining to various topics. Participants were asked to spend no more than 5 minutes finding lyrics for a song that exemplifies how people feel or think about a particular topic: either "money" or "time." To help find an appropriate song, participants were

encouraged to use the internet site [www.songlyrics.com](http://www.songlyrics.com). After entering the lyrics for their selected song, they rated how hard it was to think of or find this song (1=not at all, 7=very). Finding a time-related song ( $M=3.09$ ,  $SD=1.95$ ) was no more difficult than finding a money-related song ( $M=2.92$ ,  $SD=2.11$ ),  $F<1$ .

**Cheating opportunity.** Next, participants received two sheets of paper comprising the same Numbers Game as in Experiment 1, except there was no money involved. The first sheet included instructions for the task and the collection slip, and the second was the worksheet with 20 matrices. Participants had five minutes to complete as many matrices as possible.

The game was framed either as an intelligence test or a personality test. In the intelligence test condition, participants were instructed, “This game is an intelligence test that is designed to assess your likelihood to be successful in the future.” In the personality test condition, they were instructed, “This game is a personality test that is designed to assess what type of person you are.” Before reporting their performance, participants threw their actual matrix worksheets into a recycle bin, making them believe they had an opportunity to cheat by over-reporting their performance without getting caught. In actuality, as in Experiment 1, we were able to match the worksheet with the collection slip on which participants reported their performance.

## Results and Discussion

A 2 (prime)  $\times$  2 (assessment) ANOVA was conducted on extent of cheating, calculated as the difference between participants’ reported versus actual performance on the numbers game. The results revealed a marginal main effect of prime, whereby participants in the money condition cheated more than those in the time condition,  $F(1,138)=2.77$ ,  $p=.099$ . As predicted, this effect was qualified by a significant interaction,  $F(1,138)=3.99$ ,  $p<.05$ ,  $\eta_p^2=.03$  (see Table 1).

Only when the game was framed as an intelligence test did thinking about money lead to greater cheating than thinking about time,  $F(1,138)=6.69, p=.01$ . However, when the game was framed as a personality test designed to assess the type of person they are, there was no difference in cheating between the money and time conditions,  $F<1$ . In fact, participants primed with money cheated less when they thought the game assessed their personality than when they thought it assessed their intelligence,  $F(1,138)=4.58, p=.03$ . There was no such difference among those primed with time,  $F<1$ .

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 Insert Table 1 about here  
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These results provide further evidence for the differential effects of priming time and money on unethical behavior. Importantly, they also offer initial insight into the psychological mechanism explaining why priming time decreases cheating by showing that it makes people reflect on who they are, and this type of self-reflection reduces cheating.

### **Experiment 3: Manipulating Self-Reflection with a Mirror**

Using yet another priming technique in Experiment 3, we further examined the effect of priming money or time on cheating and the mechanism underlying this effect. In addition to priming participants with either money or time, we manipulated whether they completed their tasks in front of a mirror versus not. Facing a mirror is a technique used to increase self-reflection (Diener & Wallbom, 1976). We reasoned that if time primes reduce cheating by leading people to reflect on themselves, then the mirror condition would produce results similar to those of the time condition—exhibiting less cheating than the money without mirror condition.

### **Method**

**Participants and design.** One hundred twenty students at a university in the Southeastern United States (44 male;  $M_{age}=21.07$ ,  $SD=6.64$ ) participated in the study for pay. They received a \$2 show-up fee and could earn an additional \$10 throughout the study. The study employed a 2 (prime: time vs. money)  $\times$  2 (mirror: present vs. absent) between-subjects design.

**Prime.** Participants were told that in the study they would complete a series of unrelated tasks. As their first task, they were asked to count either a stack of 30 \$1 bills or days in a paper calendar (one page per day). This served as the money and time primes. In both conditions, we asked them to stop and record the number they had counted so far whenever they encountered a bill or a day with writing on it. Participants completed this task as fast as they could, and did it twice to check for accuracy.

**Mirror.** Half of the participants sat at their cubicle facing a mirror located right next to their computer. Half of the participants did not have a mirror at their cubicle.

**Cheating opportunity.** The same Numbers Game as in Experiments 1 and 2 was used to assess cheating. In this case, participants received \$0.50 for every correct matrix they reported solving.

**Final questionnaire.** After being paid, participants completed a final questionnaire with demographic questions and a two-item manipulation check for our self-reflection manipulation (1=strongly disagree; 7=strongly agree): “During the study, I’ve been very aware of myself” and “Rather than thinking about myself, my mind has been concentrated on what is going on around me [reverse-coded]”.

## Results and Discussion

Participants reported feeling more self-aware when a mirror was present than when it was not,  $F(1,116)=21.22, p<.001, \eta_p^2=.16$ , confirming the effectiveness of our mirror manipulation.

A  $2$  (prime)  $\times$   $2$  (mirror) ANOVA using the extent of cheating as the dependent variable revealed a significant main effect for both prime ( $F(1,116)=4.81, p=.03, \eta_p^2=.04$ ) and mirror ( $F(1,116)=5.01, p=.03, \eta_p^2=.04$ ). Importantly, these effects were qualified by a significant interaction,  $F(1,116)=4.30, p=.04, \eta_p^2=.04$  (see Table 2). Only when participants did not complete their tasks in front of a mirror did thinking about money lead to greater cheating than thinking about time,  $F(1,116)=9.11, p=.003$ . When a mirror was present, however, there was no difference in cheating between those in the money and time conditions,  $F<1$ .

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 Insert Table 2 about here  
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These results provide further evidence that priming time decreases cheating by making people reflect on who they are. By triggering self-reflection through the use of a mirror, participants primed with money behaved the same way as those primed with time.

#### **Experiment 4: Measuring Self-Reflection Directly**

The experiments thus far consistently show that thinking about money encourages cheating, while thinking about time discourages it. Experiments 2 and 3 also offer evidence that these effects occur through self-reflection. In Experiment 4, we test for this mechanism more directly by including a self-reported measure of self-reflection.

**Participants and design.** Two hundred fourteen adults recruited through MTurk (135 male;  $M_{age}=27.78, SD=6.00$ ) completed this online study for pay. Participants were randomly assigned to one of three conditions: time prime vs. money prime vs. control. The study included two supposedly unrelated tasks: a sentence unscrambling task (the prime) followed by a short

questionnaire that assessed self-reflection (the mediating mechanism), and a word jumble task (the cheating measure).

**Prime.** Participants completed the same sentence-unscramble task as in Experiment 1 in which they were surreptitiously exposed to time-related words, money-related words, or neutral words.

**Questionnaire.** After the prime, participants completed a short questionnaire that included a measure for self-reflection and some filler items. Self-reflection was assessed using four items ( $\alpha=.81$ ): “Right now, I feel like reflecting on my own life;” “Right now, I am thinking about who I am as a person;” “Right now, I am aware of myself;” and “Right now, I feel attentive to my inner feelings.”

**Cheating opportunity.** Next, participants completed an ostensibly unrelated task that involved unscrambling word jumbles (from Wiltermuth, 2011), for which they would receive a \$.50 bonus for every jumble they reported to have solved correctly. Participants were to indicate which word jumbles they successfully unscrambled without being asked to write out the unscrambled words.

The instructions indicated that the word jumbles had to be solved in the order they appeared: “if you successfully unscramble the first three word jumbles but not the fourth, you will be paid only for the first three - even if you also successfully unscramble the fifth, sixth, and seventh word jumbles.” Participants saw nine word jumbles, which could be unscrambled to spell such words as “house,” “carol,” and “jumping.” Unbeknownst to participants, the third word jumble could only be unscrambled to spell the obscure word “taguan.”<sup>1</sup> A pre-test showed that not one of the 42 participants successfully unscrambled this word jumble, which makes it

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<sup>1</sup> Taguan is a large nocturnal flying squirrel, *Petaurista petaurista*, of high forests in the East Indies that uses its long tail as a rudder.

unlikely that participants acting honestly would report having solved this jumble. Notably, solving the third word jumble allows participants to be paid for solving the very solvable fourth through eighth word jumbles. As such, participants had an incentive to cheat on the third word jumble so they could receive a greater payment. The frequency with which participants reported to have solved the third word jumble served as the measure of cheating.

**Final questionnaire.** After being paid for the task, participants answered a questionnaire with demographic questions and an open-ended question to glean their awareness of the study's objective. No participant correctly guessed the study objective or hypothesis.

### Results and Discussion

**Self-reflection.** Participants' reported self-reflection varied by condition,  $F(2,210)=12.42, p<.001, \eta_p^2=.11$  (see Table 3). In particular, they reported lower levels of self-reflection in the money condition compared to both the control condition ( $p=.001$ ) and the time condition ( $p<.001$ ). Participants reported greater self-reflection in the time condition than in the control condition ( $p=.024$ ).

**Cheating.** We observed the same pattern of results for cheating,  $\chi^2(2, N=213)=16.44, p<.001$ : participants were more likely to cheat in the money condition (73.3%, 55/75) than in either the control condition (57.4%, 39/68;  $\chi^2(1, N=143)=4.04, p=.044$ ) or the time condition (40.0%, 28/70;  $\chi^2(1, N=145)=16.44, p<.001$ ). Participants were less likely to cheat in the time condition than in the control condition ( $\chi^2(1, N=138)=4.16, p=.041$ ).

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 Insert Table 3 about here  
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**Mediation analyses.** Next, we conducted mediation analyses (Baron & Kenny, 1986) to test whether self-reflection explained the relationship between priming time and reduced

cheating, and the relationship between priming money and increased cheating. The effect of priming time was reduced to non-significance (from  $coeff = -.70$  [ $SE = .35$ ],  $p < .05$ , to  $coeff = -.45$  [ $SE = .38$ ],  $p = .24$ ) when self-reflection was included in the model, and greater self-reflection was associated with lower cheating ( $coeff = -.96$  [ $SE = .21$ ],  $p < .001$ ). A bootstrap analysis showed that the 95% bias-corrected confidence interval for the size of the indirect effect excluded zero (-.90, -.07), suggesting a significant indirect effect (MacKinnon, Fairchild, & Fritz, 2007). Similarly, the effect of priming money became non-significant (from  $coeff = .71$  [ $SE = .36$ ],  $p < .05$ , to  $coeff = .41$  [ $SE = .39$ ],  $p = .30$ ) when self-reflection was included in the model, and self-reflection predicted cheating ( $coeff = -.86$  [ $SE = .21$ ],  $p < .001$ ; 95% bias-corrected CI: [.07, 1.00]).

These results suggest that priming time reduces cheating by increasing self-reflection, and priming money increases cheating by lowering self-reflection. By measuring self-reflection directly through self-reports, this experiment allowed us to provide further evidence for our hypothesized role of self-reflection as the psychological mechanism linking time, money and morality.

### General Discussion

Does money corrupt? Given society's obsession with money, our findings offer a sobering answer to this question by showing that simply thinking about money can make people behave more dishonestly. Fortunately, an equally ubiquitous resource in our daily life, time, has the opposite effect. Across four experiments, using different primes and a variety of measures and tasks, we consistently found that shifting people's attention to time decreases dishonesty. Priming time makes people reflect on who they are, and this self-reflection reduces their likelihood to behave dishonestly.



Focusing on time therefore seems to lead people to consider how they spend their time summing up to their life as a whole, encouraging them to act in ways they can be proud of when holding up this mirror to who they are. Consequently, priming time (vs. money) makes people behave more ethically. Future research could examine potentially important boundary conditions based on how people think of time. For instance, making people feel time constrained (i.e., assuming a short term, instead of a long term, view of time) may cause them to act less ethically, rather than more.

This research contributes to previous work on the effects of priming money and/or time on individual behavior. Our findings suggest that the effects demonstrated by prior work may not be due to money or time per se, but to the amount of self-reflection they elicit. In fact, our results show that money and time primes trigger low and high levels of self-reflection, respectively. Thus, our research provides a conceptual contribution to account for the previously documented effects of money and time primes.

Our work also contributes to existing work in moral psychology and behavioral ethics. Recent research in this domain has demonstrated that although people care about being moral and being seen as ethical by others, they often fail to follow their moral compass and cheat (e.g., Mazar et al., 2008). Our results suggest that finding ways to nudge people to reflect on the self at the time of temptation, rather than on the potential rewards they can accrue by cheating, may be an effective way to curb dishonesty. Given the pervasiveness of dishonesty in today's society, we hope our research will inspire other investigations or interventions that can successfully reduce unethical behavior.

**Table 1.** Means (and standard deviations) and percentages for cheating exhibited in Experiment 2 by condition

		Extent of cheating	Percentage of participants who cheated
Personality Test	Money prime	0.42 (.81)	27.78%
	Time prime	0.49 (.89)	28.57%
Intelligence Test	Money prime	1.03 (1.85)	50.00%
	Time prime	0.27 (.98)	30.30%

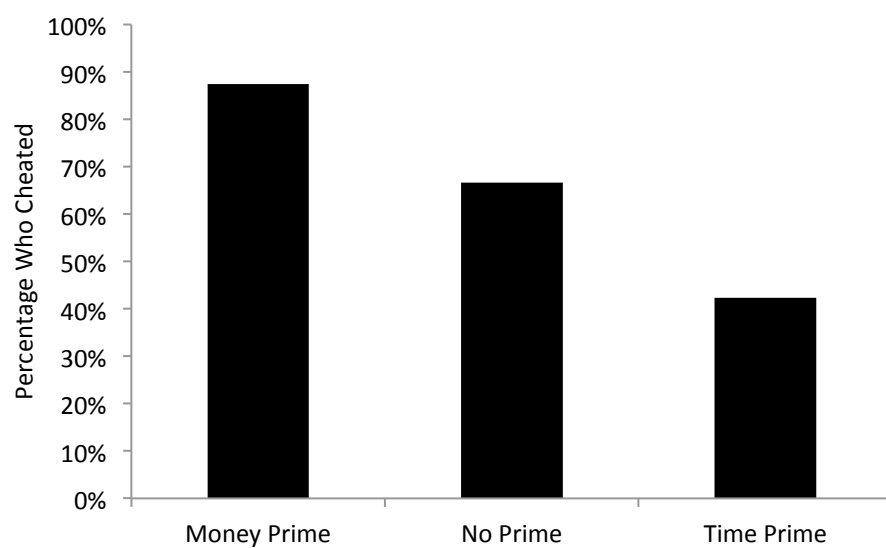
**Table 2.** Means (and standard deviations) for variables assessed in Experiment 3 by condition

		Self-reflection	Extent of cheating	Percentage of participants who cheated
Mirror	Money prime	4.60 (0.69)	1.23 (3.02)	38.7%
	Time prime	4.64 (0.72)	1.14 (2.92)	32.1%
No mirror	Money prime	3.90 (0.78)	4.23 (5.82)	66.7%
	Time prime	4.08 (0.80)	1.26 (2.62)	35.5%

**Table 3.** Means (and standard deviations) for variables assessed in Experiment 4 by condition

	Self-reflection	Percentage of participants who cheated
Money prime	3.75 (1.05)	73.3%
Control prime	4.22 (1.11)	57.4%
Time prime	4.63 (1.03)	40.0%

**Figure 1.** Percent of participants who cheated in Experiment 1 by condition



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